



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 10/608,971      | 06/26/2003  | Michael A. Pate      | 200207145-1         | 7427             |

7590 04/18/2006  
HEWLETT-PACKARD COMPANY  
Intellectual Property Administration  
P.O. Box 272400  
Fort Collins, CO 80527-2400

EXAMINER

CASCHERA, ANTONIO A

ART UNIT PAPER NUMBER

2628

DATE MAILED: 04/18/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

|                              |  |   |  |
|------------------------------|--|---|--|
| <b>Office Action Summary</b> | <b>Application No.</b><br>10/608,971   | <b>Applicant(s)</b><br>PATE, MICHAEL A. |  |
|                              | <b>Examiner</b><br>Antonio A. Caschera | <b>Art Unit</b><br>2628                 |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 23 March 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-41 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-41 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 June 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Priority*

1. Applicant's claim for the benefit of a prior-filed application under 35 U.S.C. 119(e) or under 35 U.S.C. 120, 121, or 365(c) is acknowledged. Applicant has not complied with one or more conditions for receiving the benefit of an earlier filing date under 35 U.S.C. [1] as follows:

- The later-filed application must be filed by an inventor or inventors named in the previously filed application.

### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1, 2, 4, 6-9, 20-22 and 38-41 are rejected under 35 U.S.C. 102(e) as being anticipated by Wada (U.S. Patent 6,765,585 B2).

In reference to claims 1, 20 and 38-41, Wada discloses an image display system, method and program that enable fast reproduction of an optimal image view projecting means (see column 1, lines 49-54 and Figure 1). Wada discloses projecting a calibration image on an image display region using a projector (see column 10, lines 8-10 and #S4 of Figure 6). Wada discloses a colored-light sensor detecting tristimulus values of the visual environment used in performing

image color correction (see column 10, lines 11-14 and S6 of Figure 6). Wada discloses calculating a displayable color gamut of the projector based upon the calibration image, colored-light sensor and device profile (see column 10, lines 31-35) and a target color gamut based upon a target device profile (see column 10, lines 28-30. Wada also discloses comparing the displayable color gamut and the target color gamut and performing appropriate color correction processing upon image data (see column 10, lines 36-64). Note, the Office interprets the comparing...to determine an observed different of the claims functionally equivalent to the comparing color gamuts and determining the difference/amount of colors representative by the two gamuts. Wada discloses performing color conversion upon image data and displaying the actual presentation of the image (see column 11, lines 1-14 and #S10 of Figure 6). Note, the Office further points to Figure 1 of Wada whereby a screen, having an image display region, is shown reflecting information projected by the projector, further controlled and viewed by a user (see #10, 12, 20, 30 of Figure 1). Further note, the Office interprets the image display region of Wada functionally equivalent to the principal and calibration areas of Applicant's claims. In reference to claims 20 and 41, the Office interprets the light engine, optical unit and processor of Applicant's claims functionally equivalent to the projector (see #20 of Figure 1), colored-light sensor (see #60 of Figure 1) and projector image processor (see #100 of Figure 5) respectively. In reference to claim 38, the Office interprets the calibration light unit, optical unit and output unit of Applicant's claim functionally equivalent to the projector (see #20 of Figure 1), colored-light sensor (see #60 of Figure 1) and projector image processor (see #100 of Figure 5) respectively. In reference to claim 40, Wada further discloses a storage medium readable by a processor having a program to execute the above methods (see column 12, lines 9-20).

In reference to claims 2 and 4, Wada discloses all of the claim limitations as applied to claim 1 above. Wada also discloses comparing the displayable color gamut and the target color gamut and performing appropriate color correction processing upon image data (see column 10, lines 36-64). The Office interprets the “color characteristic” of Applicant’s claim to be inherently determined by the color gamut calculations of Wada.

In reference to claims 6-9, Wada discloses all of the claim limitations as applied to claim 1 above. Wada discloses a colored-light sensor detecting tristimulus values of the visual environment used performing image color correction (see column 10, lines 11-14 and S6 of Figure 6). Wada discloses calculating a displayable color gamut of the projector based upon the calibration image, colored-light sensor and device profile (see column 10, lines 31-35). Wada also discloses comparing the displayable color gamut and the target color gamut and performing appropriate color correction processing upon image data (see column 10, lines 36-64). Wada discloses performing color conversion upon image data and displaying the actual presentation of the image (see column 11, lines 1-14 and #S10 of Figure 6).

In reference to claim 21, Wada discloses all of the claim limitations as applied to claim 20 above. Wada discloses a colored-light sensor detecting tristimulus values of the visual environment used in performing image color correction (see column 10, lines 11-14 and S6 of Figure 6).

In reference to claim 22, Wada discloses all of the claim limitations as applied to claim 20 above in addition Wada discloses the projector to comprise of a profile storage units storing color gamut data or “color characteristic” data (see column 10, lines 28-35 and #160 of Figure 5).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 3, 5, 10-19 and 23-37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wada (U.S. Patent 6,765,585 B2) in view of Smith (U.S. Patent 6,285,349 B1).

In reference to claims 3 and 33, Wada discloses all of the claim limitations as applied to claims 1 and 32 respectively. Wada does not explicitly disclose projecting the image without a portion of the image corresponding to the calibration area since Wada uses the same image display area for displaying both regular and calibration images. Smith discloses a method and system for correcting non-uniformity in displays such as projection displays (see column 1, lines 4-5). Smith also discloses where projecting a principal image includes projecting a principal image without a portion of the principal image corresponding to the calibration area, and projecting a calibration image includes projecting the calibration image onto the calibration area while projecting the principal image without the portion (see column 3, lines 55-67 where the missing portion could conceivably be the entire portion; column 6, lines 37-65 where the movement of the single spot around the displayed image is interpreted as projecting the calibration image without a principal image portion because that pixel is displayed where the image data would be displayed). It would have been obvious to one of ordinary skill in the art at the time the invention was made to implement the calibration techniques of Smith with the

Art Unit: 2628

projection displaying/calibrating techniques of Wada in order to better correct for non-uniformities between display systems that become obvious to a viewer of the system after viewing for long periods of time (see column 1, lines 17-23 and 45-54 of Smith).

In reference to claim 5, Wada discloses all of the claim limitations as applied to claim 1 above. Wada does not explicitly disclose segmenting the intended calibration image into a plurality of subunits. Smith discloses a method and system for correcting non-uniformity in displays such as projection displays (see column 1, lines 4-5). In addition, Smith discloses the method further comprising: segmenting the intended calibration image into a plurality of subunits (column 7, line 11-33, column 3, lines 26-35 & 40-42 disclose the calibration as done on a pixel by pixel basis which is the segmentation of the calibration image into a plurality of subunits) and segmenting the received calibration image into a corresponding plurality of subunits (column 7, lines 11-33, column 3, lines 26-35 & 40-42 disclose the calibration as done on a pixel by pixel basis which is the segmentation of the calibration image into a plurality of subunits). Also Smith discloses comparing the received calibration image to the intended calibration image including determining a color characteristic for each intended calibration image subunit (column 7, lines 11-33, column 3, lines 26-35 & 40-42 disclose the calibration as done on a pixel by pixel basis which is the segmentation of the calibration image into a plurality of subunits; column 5, lines 9-11), determining a color characteristic for each received calibration image subunit (column 7, lines 11-33, column 3, lines 26-35 & 40-42 disclose the calibration as done on a pixel by pixel basis which is the segmentation of the calibration image into a plurality of subunits and wherein the color characteristic is the light); and comparing the intended calibration color characteristic to the received calibration image color characteristic for

Art Unit: 2628

at least one subunit (column 3, lines 18-26 & 55-67). It would have been obvious to one of ordinary skill in the art at the time the invention was made to implement the calibration techniques of Smith with the projection displaying/calibrating techniques of Wada in order to better correct for non-uniformities between display systems that become obvious to a viewer of the system after viewing for long periods of time (see column 1, lines 17-23 and 45-54 of Smith).

In reference to claims 10 and 23-25, Wada discloses all of the claim limitations as applied to claims 1 and 20 respectively above. Wada does not explicitly disclose using two light sources, one projecting a regular image and another projecting a calibration image however Smith does. Smith discloses where projecting the principal image includes projecting the principal image from at least a first light source, and projecting an intended calibration image includes projecting the intended calibration image from at least a second light source (column 2, lines 40-44). It would have been obvious to one of ordinary skill in the art at the time the invention was made to implement the calibration techniques of Smith with the projection displaying/calibrating techniques of Wada in order to better correct for non-uniformities between display systems that become obvious to a viewer of the system after viewing for long periods of time (see column 1, lines 17-23 and 45-54 of Smith).

In reference to claims 11 and 32, Wada discloses all of the claim limitations as applied to claims 1 and 23 respectively above. Wada discloses projecting a calibration image on an image display region using a projector (see column 10, lines 8-10 and #S4 of Figure 6). Wada discloses a colored-light sensor detecting tristimulus values of the visual environment used in performing image color correction (see column 10, lines 11-14 and S6 of Figure 6). Wada discloses calculating a displayable color gamut of the projector based upon the calibration image, colored-



Art Unit: 2628

light sensor and device profile (see column 10, lines 31-35) and a target color gamut based upon a target device profile (see column 10, lines 28-30. Wada also discloses comparing the displayable color gamut and the target color gamut and performing appropriate color correction processing upon image data (see column 10, lines 36-64). Note, the Office interprets that the display techniques of Wada could be performed on the calibration image of Wada however Wada does not explicitly disclose modifying the calibration. Smith discloses a method and system for correcting non-uniformity in displays such as projection displays (see column 1, lines 4-5). Smith discloses modifying the calibration image (column 3, lines 40-42 where the same multiplication applied to any other image would be applied to the calibration image). It would have been obvious to one of ordinary skill in the art at the time the invention was made to implement the calibration techniques of Smith with the projection displaying/calibrating techniques of Wada in order to better correct for non-uniformities between display systems that become obvious to a view of the system after viewing for long periods of time (see column 1, lines 17-23 and 45-54 of Smith).

In reference to claims 12-17, Wada discloses all of the claim limitations as applied to claim 1 above. Wada discloses calculating a displayable color gamut of the projector based upon the calibration image, colored-light sensor and device profile (see column 10, lines 31-35) and a target color gamut based upon a target device profile (see column 10, lines 28-30. Wada also discloses comparing the displayable color gamut and the target color gamut and performing appropriate color correction processing upon image data (see column 10, lines 36-64). Note, the Office interprets the comparing...to determine an observed difference of the claims functionally equivalent to the comparing color gamuts and determining the difference/amount of colors

Art Unit: 2628

representative by the two gamuts. Wada does not explicitly disclose segmenting the calibration image however, Smith discloses segmenting the intended calibration image into a plurality of subunits (column 7, line 11-33, column 3, lines 26-35 & 40-42 disclose the calibration as done on a pixel by pixel basis which is the segmentation of the calibration image into a plurality of subunits). It would have been obvious to one of ordinary skill in the art at the time the invention was made to implement the calibration techniques of Smith with the projection displaying/calibrating techniques of Wada in order to better correct for non-uniformities between display systems that become obvious to a viewer of the system after viewing for long periods of time (see column 1, lines 17-23 and 45-54 of Smith). Further in reference to claims 15 and 16, the Office interprets the light engine commands derived from image data along with the operating parameters of the light engine of Applicant's claim functionally equivalent to the matrix data comprised within the matrix generation and converter sections of the projector since modification of such data directs the projector to display/operate certain data. Also, in reference to claim 17, since Smith discloses performing calibration on a pixel by pixel basis (see column 7, lines 11-33, column 3, lines 26-35, 40-42 & column 5, line 9-11), the Office interprets such as being repeated for each subunit of the image.

In reference to claims 18, 36 and 37, Wada and Smith disclose all of the claim limitations as applied to claims 12 and 32. The Office interprets the color gamuts of Wada to inherently include at least one of an average red intensity, an average blue intensity, an average green intensity, average color, chromaticity, color temperature or luminance.

In reference to claims 19 and 26, Wada and Smith disclose all of the claim limitations as applied to claims 12 and 25 respectively above. Wada discloses a colored-light sensor detecting

tristimulus values of the visual environment used in performing image color correction (see column 10, lines 11-14 and S6 of Figure 6).

In reference to claim 27, Wada and Smith disclose all of the claim limitations as applied to claim 23 above. Wada discloses the project being separate from the colored-light sensor (see #20 and #60 of Figure 1).

In reference to claim 28, Wada and Smith disclose all of the claim limitations as applied to claim 27 above. Neither Wada nor Smith explicitly disclose the color sensor freely movable relative to the projector however at the time the invention was made, it would have been obvious to one of ordinary skill in the art to implement the top surface mounted sensor of Wada freely movable utilizing an extension cord type of wires or even providing a wireless interface to extend the sensor signals allowing to freely move the sensor to different positions. Applicant has not disclosed that providing the sensor as freely movable provides an advantage, is used for a particular purpose, or solves a stated problem. One of ordinary skill in the art, furthermore, would have expected Applicant's invention to perform equally well with top projector surface mounted sensor because the sensor is in direct sight of the light produced by the projected and therefore would, theoretically obtain the most accurate measurements. Further, the Office sees no immediate criticality, in view of this specific limitation, and the invention at hand. Therefore, it would have been obvious to one of ordinary skill in this art to modify Wada to obtain the invention as specified in claim 28.

In reference to claim 29, Wada and Smith disclose all of the claim limitations as applied to claim 27 above. The Office interprets the colored sensor of Wada to inherently provide some

sort of “output device” mounted to the sensor to output information to the projector for calibration of projected images (see #60 and #100 of Figure 5).

In reference to claim 30, Wada and Smith disclose all of the claim limitations as applied to claim 29 above. Wada discloses a colored-light sensor detecting tristimulus values of the visual environment used performing image color correction (see column 10, lines 11-14 and S6 of Figure 6). The Office interprets the colored sensor of Wada to inherently provide some sort of “output device” mounted to the sensor to output information to the projector for calibration of projected images (see #60 and #100 of Figure 5 of Wada).

In reference to claim 31, Wada and Smith disclose all of the claim limitations as applied to claim 23 above. The Office interprets the projector processor of Wada to inherently comprise of some sort of “input device” to receive the sensed colored light signal from the colored-light sensor (see #60 and #100 of Figure 5 of Wada).

In reference to claim 34, Wada and Smith disclose all of the claim limitations as applied to claim 32 above. The Office interprets the projector of Wada to inherently comprise of a power on/off button or “input device” thereby initiating projection of images (see #20 of Figure 1).

In reference to claim 35, Wada and Smith disclose all of the claim limitations as applied to claim 32 above. The Office interprets the processor of the projector of Wada to inherently be provided with instructions to start and stop displaying of both regular images and calibration images as seen by the process flow of Figure 6 in Wada (“START”, #S4, S10 and “END”).

### ***Response to Arguments***

4. Applicant's arguments, see pages 13-19 of Applicant's Remarks, filed 03/23/06, with respect to the rejection(s) of claim(s) 1-41 under 35 U.S.C 102(b) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Wada (U.S. Patent 6,765,585 B2). Note, Applicant's arguments have been overcome by the new rejection of Wada since Applicant's arguments addressed issues now applicable to the Wada rejection.

5. Since this application is eligible for the transitional procedure of 37 CFR 1.129(a), and the fee set forth in 37 CFR 1.17(r) has been timely paid, the finality of the previous Office action is hereby withdrawn pursuant to 37 CFR 1.129(a). Applicant's first submission after final filed on 03/23/06 has been entered.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Antonio Caschera whose telephone number is (571) 272-7781. The examiner can normally be reached Monday-Thursday and alternate Fridays between 7:00 AM and 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kee Tung, can be reached at (571) 272-7794.

**Any response to this action should be mailed to:**

Commissioner of Patents and Trademarks  
Washington, D.C. 20231

Art Unit: 2628

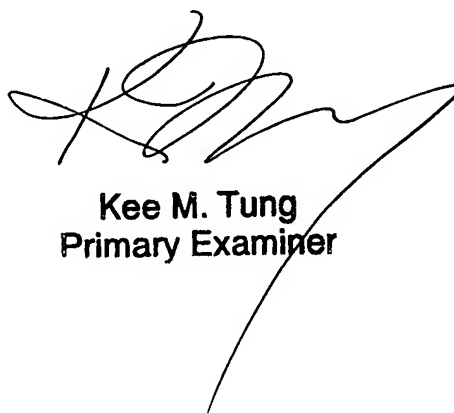
**or faxed to:**

**571-273-8300 (Central Fax)**

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (571) 272-2600.

aac  
*AMC*  
4/12/06

**PATENT EXAMINER**



**Kee M. Tung**  
**Primary Examiner**